**AMENDMENTS TO THE CLAIMS**

1. (amended) An acoustic logging apparatus comprising:

   (a) a bottomhole assembly (BHA) conveyed on a drilling tubular in a borehole within an earth formation, said BHA comprising a source array for emitting preselected acoustic signals into the earth formation; and

   (b) at least one receiver on the BHA for receiving a second acoustic signal produced by an interaction of said preselected acoustic signals with said formation, wherein the at least one receiver is at least one of i) a three-component geophone and ii) a three-component accelerometer.

2. (original) The apparatus of claim 1 wherein said at least one source comprises at least one of i) an axially distributed array of axially directed sources, ii) an azimuthally distributed array of axially directed sources, iii) an axially distributed array of azimuthally directed sources, and iv) an azimuthally distributed array of azimuthally directed sources.

3. (original) The apparatus of claim 2 further comprising activating said source array according to at least one of: i) pre-selected sequential time delays, ii) pre-selected energy levels and iii) coded activation sequences.

4. (original) The apparatus of claim 1 further comprising at least one source array for emitting said preselected acoustic signals which is differing in at least one of i) a spectrum and ii) a wave mode from acoustic energy of a rotating drillstring.

5. (original) The apparatus of claim 1 further comprising said at least one source array that emits at least one of: i) a monopole acoustic signal, ii) a dipole acoustic signal, and iii) a

quadrupole acoustic signal.

6. (original) The apparatus of claim 1 wherein said at least one receiver is located a distance at least two wavelengths from an element of said source array.

7. (original) The apparatus of claim 6 wherein said at least one receiver comprises a plurality of receivers for receiving said second signal and comprise at least one of: i) a pressure sensor, and ii) a motion sensor.

8. (original) The apparatus of claim 7 wherein said plurality of receivers for receiving said second signal include a hydrophone, an accelerometer and a geophone.

9. (original) The apparatus of claim 7 wherein said plurality of receivers for receiving said second signal include at least one of i) an accelerometer and ii) a geophone, said receivers adjustably located to contact the earth formation.

10. (original) The apparatus of claim 1 wherein said at least one receiver receives said second signal that has traversed part of said earth formation.

11. (amended) A method of obtaining information about a parameter of interest of an earth formation, the method comprising:

(a) using a drillbit on a bottom hole assembly (BHA) conveyed on a drilling tubular for drilling a borehole in said earth formation;

(b) suspending drilling operations and using said drilling tubular to move said drillbit away from a bottom of the borehole;

(c) generating an acoustic signal into said earth formation using an acoustic source array on the BHA; and

(d) determining said parameter of interest from a received signal resulting from an interaction of the generated acoustic signal with the earth formation, wherein the received signal is acquired with at least one of I) a three-component geophone and ii) a three-component accelerometer.

12. (original) The method of claim 11 wherein generating said acoustic signal further comprises sequentially activating elements of said acoustic source array.

13. (original) The method of claim 11 wherein generating said acoustic signal further comprises activating elements of said acoustic source array in the borehole axial direction according to at least one of: i) pre-selected sequential time delays, ii) pre-selected energy levels and iii) coded activation sequences.

14. (original) The method of claim 11 wherein said received signal has traversed part of said earth formation that is adjacent to said borehole.

15. (original) The method of claim 11 wherein determining a parameter of interest further comprises defining a reflector imaging direction that is at least one of: I) parallel to the axis of the borehole, ii) oblique to the axis of the borehole, and iii) perpendicular to the axis of the borehole.

16. (original) The method of claim 11 wherein said generated acoustic signal is differing in at least one of: I) a spectrum of acoustic energy of a rotating drillstring, and ii) a wave

mode from acoustic energy of a rotating drillstring.

17. (original) The method of claim 11 wherein said generated acoustic signal is at least one of: i) a monopole acoustic signal, ii) a dipole acoustic signal, and iii) a quadrupole acoustic signal.

18. (amended) A system for determining a property of an earth formation using an acoustic logging tool on a bottomhole assembly (BHA) in a borehole in said earth formation, the system comprising:

(a) at least one source array in said acoustic logging tool for generating preselected acoustic signals into said formation, said preselected acoustic signal differing in spectrum and/or wave mode from acoustic energy of a rotating drillstring;

(b) a plurality of receivers on said logging tool for receiving signals indicative of said parameter of interest, wherein the receivers are at least one of i) a three-component geophone and ii) a three-component accelerometer;

(c) acquiring signals at a plurality of depths of said BHA; and

(d) processing said acquired signals to obtain the parameter of interest.

19. (original) The system of claim 18 wherein said signals are acquired when the BHA is not in contact with the bottom of the borehole.

20. (original) The system of claim 18 wherein said at least one source array comprises at least one of i) an axially distributed array of axially directed sources, ii) an azimuthally distributed array of axially directed sources, iii) an axially distributed array of azimuthally directed sources, and iv) an azimuthally distributed array of azimuthally directed

sources.

21. (original) The system of claim 20 further comprising sequentially firing said at least one source array in the borehole axial direction according to at least one of: i) pre-selected sequential time delays, ii) pre-selected energy levels and iii) coded activation sequences.

22. (original) The system of claim 18 wherein processing said acquired signals further comprises defining an imaging ahead of the drillbit along the axis of the borehole.

23. (original) The system of claim 18 wherein processing said acquired signals further comprises combining receiver signals from at least one of i) a pressure sensor, and ii) a motion sensor.

24. (original) The system of claim 18 wherein processing said acquired signals further comprises defining time shifts according to a pre-selected imaging direction.

25. (original) The system of claim 18 wherein processing said acquired signals further comprises compressing and transmitting said signals to the surface in substantially real time.

26. (original) The system of claim 18 wherein processing said acquired signals further comprises full waveform processing in the BHA.

27. (amended) The system of claim ~~25~~ 26 wherein information from said full waveform

processing in the BHA is used for downhole control of a geosteering system.

28. (original) The system of claim 18 wherein said plurality of receivers for receiving said signals indicative of a parameter of interest include at least one of i) an accelerometer and ii) a geophone, said receivers adjustably located to contact the earth formation.